

Appendix 8

Summary of inputs

Southern North Sea Sediment Transport Study, Phase 2 - Sediment Transport Report – Appendix 8 Summary of inputs

Seabed features	Model Results – area model, local modelling, drift modelling (HRW - SNS2)	Process data (CEFAS – SNS2)	Other published information
<p>UKHO:</p> <ul style="list-style-type: none"> ➢ Seabed topography (bathymetry) <p>BGS:</p> <ul style="list-style-type: none"> ➢ Seabed sediment distribution (whole UKCS) ➢ Seabed sediment distribution (20 km coastal strip) GIS layer ➢ Seabed facies GIS layer ➢ Seabed bedforms GIS layer ➢ Anglian Sea Defence Management Study Phase III – Nearshore corridor mapping (16 areas, available from EA Anglian in .dxf format) <p>Interpreted sediment transport:</p> <ul style="list-style-type: none"> ➢ BGS Sed Trans interpretation (sandwave structure, comet or wreck marks) – modified and added to in places by SNS2 team ➢ SNS2 team additional interpretation (sand streaks, megaripple patches, sandwave asymmetry) <p>Seabed features:</p> <ul style="list-style-type: none"> ➢ CEFAS sidescan – Humber¹, Winterton, Clacton ➢ HHA/CEFAS sidescan – Harwich ➢ Dredging surveys 	<p>Model for Southern North Sea and English Channel (TELEMAR)</p> <p>Velocity field (validated with new Process data and data from Data archive)</p> <p>Predictions of sediment mobility</p> <p>Predictions of sediment flux (SANDFLOW):</p> <ul style="list-style-type: none"> ➢ Tidal residual ➢ Peak flux and direction <p>For:</p> <ul style="list-style-type: none"> ➢ Different grades of sediment ➢ Different forcing scenarios (influence of tidal range and wave stirring) ➢ Role of storms/surge – surge levels, wind stress, wave stirring <p>Refined modelling (TELEMAR) at:</p> <ul style="list-style-type: none"> ➢ Winterton Ness (full wave-current modelling) ➢ Clacton (tidal modelling) <p>Drift modelling (COSMOS):</p> <ul style="list-style-type: none"> ➢ Holderness (Hornsea) 	<p>Velocities:</p> <ul style="list-style-type: none"> ➢ Waves and currents from frame mounted instruments (Winterton, Clacton) ➢ Time averaged currents from moored current meters (Winterton, Clacton) ➢ Time averaged currents from MV ADCP surveys (Winterton, Clacton) <p>Bed shear stress due to W+C from measurements of waves (1. wave pressure record converted to bottom orbital velocity and 2. from current meter records) and currents</p> <p>Sediment concentration:</p> <ul style="list-style-type: none"> ➢ Fines (optical backscatter OBS) ➢ Sand (acoustic backscatter ABS) ➢ Boomer tube samples (sediment composition) <p>Sediment flux:</p> <ul style="list-style-type: none"> ➢ Product of ABS and current meter (at height of current meter and also ? integrate over height assuming suitable current profile) ➢ Product of OBS and current meter (at height of instruments and also ? integrate over height assuming suitable current profile and concentration profile) <p>Sediment tracer:</p> <ul style="list-style-type: none"> ➢ Winterton Ness <p>Surface water-sediment samples (synoptic):</p> <ul style="list-style-type: none"> ➢ Winterton, Clacton, Humber <p>Surface-water salinity (synoptic):</p> <ul style="list-style-type: none"> ➢ Humber <p>Data archive:</p> <ul style="list-style-type: none"> ➢ Synoptic water-sample ➢ Current meter time series (moorings) ➢ Process studies (launders) 	<p>Phase 1, Southern North Sea Sediment Transport Study report</p> <p>Bedforms and morphology literature</p> <p>Seabed sediment literature</p> <p>Process study literature</p> <ul style="list-style-type: none"> ➢ Waves, currents, sediment transport (flux) <p>Fine sediment flux:</p> <ul style="list-style-type: none"> ➢ North Sea Project ➢ Humber flux curtain <p>Satellite/modelling studies:</p> <ul style="list-style-type: none"> ➢ e.g. PROMISE project <p>STA studies:</p> <ul style="list-style-type: none"> ➢ Humber ➢ East coast <p>Seabed drifters</p> <ul style="list-style-type: none"> ➢ Humber ➢ East coast <p>Sediment tracers:</p> <ul style="list-style-type: none"> ➢ Shingle, sand, fine sediments <p>Heavy mineral analysis</p> <p>Seabed erosion</p> <p>Coastal erosion</p> <p>Aggregate extraction records</p> <p>Sediment deposition centres:</p> <ul style="list-style-type: none"> ➢ Estuaries and embayments ➢ Coastal areas ➢ Offshore areas including deeps <p>Area model results</p> <ul style="list-style-type: none"> ➢ Waves, currents, sediment transport <p>Coastal sediment modelling</p> <ul style="list-style-type: none"> ➢ GIS catalogue and interpretation (collated into GIS layer) ➢ Graphical representations <p>Coastal sediment cells</p> <p>Internal structure of sediment bodies (seismics)</p>

¹ Analysed in collaboration with BGS as part of Humber Estuary SMP2 project

